## I. AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-24 (Cancelled)

Claim 25 (Currently amended) A method of preparing an implant for connective tissue substitution in an animal, said method comprising the steps of:

a) providing a ~~set~~ pair of bone anchors ~~by joining a pair of bone plugs~~ joined at their proximal ends by at least one support filament, said bone anchors having been joined with said support filament *ex vivo;*

b) incubating ~~at least one time~~ said ~~set~~ pair of bone anchors ~~of step a)~~ in a solution containing matrix forming molecules for a period of time sufficient for the formation of at least one matrix layer around said support filament,

wherein said matrix layer has a thickness sufficient to allow for colonization by cells, and wherein said incubation is performed under conditions in which are induced waves, vibrations, cyclic tractions, and/or static tractions of said implant.

Claim 26 (Original) The method according to claim 25, wherein said matrix is further colonized by a cell.

Claim 27 (Original) The method according to claim 25, wherein said implant is chemically treated prior to implantation.

Claim 28 (Original) The method according to claim 25, wherein said connective tissue is selected from the group consisting of a tendon, a cartilage, a disk, a meniscus, a muscle, a tooth, a hair, a joint, and a ligament, or a combination thereof.

Claim 29 (Original) The method according to clam 25, wherein said animal is a human.

Claim 30 (Original) The method according to claim 25, wherein said animal is a non-human mammal.

Claim 31 (Currently Amended) The method according to claim ~~24~~ 25, wherein said bone anchor is selected from the group consisting of a bone portion, and a piece composed of (a) a natural biocompatible porous material; (b) a ~~and/or~~ synthetic biocompatible porous material; or (c) both (a) and (b).

Claim 32 (Original) The method according to claim 25, wherein said matrix layer is a collagen gel layer.

Claim 33 (Currently amended) The method according to claim 25, wherein said matrix layer is composed of compound selected from the group consisting of chitosan, ~~glygosaminoglycan, chitin, ubiquitin, elastin,~~ glycosaminoglycan, chitin, ubiquitin, elastin, ~~polyethylen~~ polyethylene glycol, ~~polyethylen~~ polyethylene oxide, vimentin, and fibronectin, or derivatives or combinations thereof.

Claim 34 (Original) The method according to claim 25, wherein said filament is selected from the group consisting of a resorbable thread, a

natural fiber, and a filament composed of at least one of protein, lipid, biocompatible molecule or synthetic component.

Claim 35 (Original) The method according to claim 25, wherein said matrix layer further comprises a cell.

Claim 36 (Original) The method according to claim 25 or 26, wherein said cell is a heterologous cell.

Claim 37 (Original) The method according to claim 25 or 26, wherein said cell is selected from the group consisting of a fibroblast, a myoblast, an osteoblast, a mesenchymal cell, an endothelial cell, an epithelial cell, an immune cell, a chondrocyte, and a combination thereof.

Claim 38 (Original) The method according to claim 25, wherein said matrix further comprises a pharmaceutically effective amount of biologically active molecule selected from the group consisting of a drug, a growth factor, a cytokine, an antibiotic, a hormone, and a combination thereof.

Claim 39 (Original) The method according to claim 25, wherein said inner matrix layer is coated by at least one supplementary matrix coating layer.

Claim 40 (Original) The method according to claim 39, wherein at least one of said inner matrix layer or filament is dehydrated or lyophilized prior to coating by said supplementary matrix coating layer.

Claim 41 (Original) The method according to claim 39, wherein said supplementary matrix coating layer is dehydrated or lyophilized before being coated by another supplementary matrix coating layer.

Claim 42 (Original) The method according to claim 39 or 41, wherein said supplementary matrix coating layer or another supplementary matrix coating layer further comprises a cell.

Claim 43 (Original) The method according to claim 25, wherein said cell is an autologous cell.

Claim 44 (Original) The method according to claim 25, wherein said cell is a heterologous cell.

Claim 45 (New) The method according to claim 32, wherein said collagen is a recombinant collagen.

Claim 46 (New) The method according to claim 32, wherein said collagen is selected from the group consisting of types I, II and III collagen.

Claim 47 (New) The method according to claim 32, wherein the collagen is from an animal tissue source.

Claim 48 (New) The method according to claim 47, wherein said animal tissue is selected from the group consisting of tendon, skin, cornea, bone, cartilage, vertebral disc, cardiovascular tissue and placenta.

Claim 49 (New) The method according to claim 25, wherein said implant is a ligament substitute.

Claim 50 (New) The method according to claim 49, wherein said ligament is selected from the group consisting of an anterior cruciate ligament substitute and a periodontal ligament substitute.

Claim 51 (New) The method according to claim 25, wherein said providing step (a) comprises joining a pair of bone anchors at their proximal ends with at least one support filament, wherein said joining is performed *ex vivo*.